CLAIMS

1. Integrated process for urea and melamine production, wherein urea is produced in a urea plant comprising a high pressure urea synthesis section and a urea recovery section for separating urea from a carbamate aqueous solution, and melamine is produced in a melamine plant wherein off-gases resulting as by-products of the melamine synthesis are discharged therefrom at a pressure of at least 2 bar and recycled to said high pressure urea synthesis section, the process being characterized in that it further comprises the steps of:

- feeding said off-gases coming from said melamine plant to an off-gas condensation section;

- feeding said carbamate aqueous solution coming from said urea recovery section to said off-gas condensation section;

- condensing said off-gases with said carbamate aqueous solution in said off-gas condensation section obtaining a concentrated carbamate aqueous solution;

- feeding the so obtained concentrated carbamate aqueous solution to said high pressure urea synthesis section.

2. Process according to claim 1, characterized in that said off-gas condensation section is operated at a pressure substantially equal to the pressure of said off-gases.

3. Process according to claim 1, characterized in that said carbamate aqueous solution coming from said urea recovery section is directly fed to said off-gas condensation section.

4. Process according to claim 1, characterized in that it further comprises the step of:

- compressing said carbamate aqueous solution coming from said urea recovery section to a pressure substantially corresponding to the operating pressure of said off-gas condensation section, previous to feeding it in such a section.

5. Process according to claim 1, characterized in that said concentrated carbamate aqueous solution is directly fed to said high pressure urea synthesis section.

6. Process according to claim 1, characterized in that it further comprises the step of:

- compressing said concentrated carbamate aqueous solution coming from said off-gas condensation section to a pressure substantially corresponding to the operating pressure of said high pressure urea synthesis section, previous to feeding it in such a section.

7. Integrated plant for urea and melamine production, wherein urea is produced in a urea plant (12) comprising a high pressure urea synthesis section (15) and a urea recovery section (16) for separating urea from a carbamate aqueous solution, and melamine is produced in a melamine plant (11) comprising a melamine synthesis section (13) wherein off-gases resulting as by-products of the melamine synthesis are discharged therefrom at a pressure of at least 2 bar and recycled to said high pressure urea synthesis section (15), the plant being characterized in that it further comprises:

- an off-gas condensation section (17) arranged between said the plant (11) for melamine production and said plant (12) for urea production and in fluid communication with said melamine synthesis section (13), said urea recovery section (16) and said high pressure synthesis section (15).

- connecting means (37) for feeding said off-gases coming from said melamine synthesis section (13) to said off-gas condensation section (17);

- connecting means (38) for feeding said carbamate aqueous solution coming from said urea recovery section (16) to said off-gas condensation section (17), wherein said off-gases are condensed with said carbamate aqueous solution obtaining a concentrated carbamate aqueous solution;

- connecting means (31) for feeding the so obtained concentrated carbamate aqueous solution to said high pressure urea synthesis section (15).

8. Plant according to claim 7, characterized in that it further comprises a first compressor section (18), arranged between and in fluid communication with said urea recovery section (16) and said off-gas condensation section (17) for compressing said carbamate aqueous solution coming from said urea recovery section (16) to a pressure substantially corresponding to the operating pressure of said off-gas condensation section (17).

9. Plant according to claim 7, characterized in that it further comprises a second compression section (19), arranged between and in fluid communication with said off-gas condensation section (17) and said high pressure urea synthesis section (15) for compressing said concentrated carbamate aqueous solution coming from said off-gas condensation section (17) to a pressure substantially corresponding to the operating pressure of said high pressure urea synthesis section (15).